

Docket No. 270155US6PCT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Gabriele STOCCHI

SERIAL NUMBER: 10/530,059

FILING DATE: April 4, 2005

FOR: FILLING VALVE FOR THE ASEPTIC FILLING OF ALIMENTARY LIQUIDS

PETITION UNDER 37 CFR 1.181 TO WITHDRAW HOLDING OF ABANDONMENT

COMMISSIONER FOR PATENTS
BOX PCT
ALEXANDRIA, VIRGINIA 22313

SIR:

Pursuant to the provisions of 37 CFR §1.81, Applicant hereby petitions to withdraw the holding of abandonment in the above-identified application. Applicant has received a notice of abandonment mailed July 12, 2006 in the above-identified national stage application which states that the application is abandoned for failure to respond to the notification of missing requirements mailed 11/15/05 within the time period set therein.

This petition is being made in view of the fact that Applicant's representative did not receive the notice of missing requirements mailed on 11/15/05 in light of the decision set forth in *Delgar v. Schulyer*, 172 USPQ 513 (D.D.C. 1971).

The undersigned attorney of record hereby attests to the fact that a search of the file jacket and docket records in our office indicates that the Office communication was not received. Copies of the docket records are attached hereto showing where the non-received Office communication would have been entered had it been received and docketed. The first copy is the docket record dated January 15, 2006 which is two months from the mailing date of the notice of missing requirements. The second copy is the docket record dated March 3, 2006 which is 32 months from the earliest priority date. Neither docket record indicates a due date as being docketed for filing the declaration in the present application.

Applicants also are submitting herewith a duly executed Declaration and Power of Attorney by the inventor attached to a copy of the specification. The undersigned hereby states that the copy of the specification submitted herewith is in fact the application which the Inventor executed by signing the enclosed Declaration. The required surcharge was paid with the filing of the original application.

Applicant therefore believes that sufficient evidence has been presented for the Patent Office to withdraw the holding of abandonment. Such action is hereby earnestly solicited.

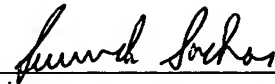
Our check in the amount of \$-0.00- is attached hereto. If any variance exists between the

amount enclosed and the required Government fee, please charge or credit the difference to our Deposit Account No. 15-0030. A duplicate copy of this sheet is enclosed.

If these papers are not considered timely filed by the Patent and Trademark Office, a petition is hereby made under 37 C.F.R. §1.136 and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time may be charged to Deposit Account No. 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully Submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier

Registration No. 25,599

Customer Number

22850

Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 05/06)

Surinder Sachar

Registration No. 34,423

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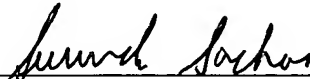
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Gregory J. Maier

Registration No. 25,599

Customer Number

22850

Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 05/06)

Surinder Sachar

Registration No. 34,423

Filling valve for the aseptic filling of alimentary liquids

Field of the art

The present invention concerns the technology of filling valves, in particular the aseptic filling of alimentary liquid. International classification B 67c.

State of the art

It is known that a filling chamber pressurized with aseptic gas is used for the sterile bottling of alimentary liquids. According to the current state of the art it is possible to guarantee the total sterility of the gases used, but not the total sterility of the environment in the pressurized chamber. As a matter of fact, the filling chamber, before being sterilized, is filled with the external atmosphere whose presence is gradually reduced by aseptic gas flushing. The presence of atmospheric residual elements can not be completely removed without the preliminary creation of the absolute vacuum.

Therefore, said system does not guarantee the aseptic conditions of the area between the outflow mouth of the aseptic product and the mouth of the container to be filled. In this area, the stream of the alimentary liquid comes in touch with the external atmosphere reducing the aseptic conditions of the filling process. The atmospheric gas of the container, which is expelled as the level of liquid increases during the filling, contributes to lowering the process sterility degree.

Furthermore, at the end of the filling process, the neck space of the filled container is filled with the atmospheric gas of the filling chamber, which generally contains a considerable amount of oxygen. This residual oxygen, inside the final package, generates oxidation that negatively affects the characteristics of the edible products.

The invention hereby described proposes an optimal solution to the problem guaranteeing the aseptic filling also in the critical area between the mouth of the



container and the outflow mouth of the product coming from the filling valve. It is in such critical area that a special continuous sterile gas flushing must be used to protect the product entering the bottle. Furthermore, the continuous flushing of sterile or inert gas reduces the amount of oxygen in the neck space of the filled container.

Description

The invention is now disclosed with reference to the figures of the drawings attached to be considered as a non restrictive exemplification.

Figure 1 shows schematically the presence of a continuous flow of sterile or inert gas (10) fed through an auxiliary circuit (2) in the space (8) that surrounds the body of the filling valve (7) also in the closing phase, that is the intercepting of the feeding of the product. It can be noticed that the stem (7) of the valve (7) is kept closed by compressed air fed by the conduit (5).

Figure 2 represents the filling phase during which the flow of product, fed through the conduit (3), is always protected by the continuous stream of sterile and/or inert gas (10) fed by the auxiliary circuit (2). It should be pointed out that said flow (10) reduces the contact of the product with the external atmosphere improving the aseptic conditions of the filling process. It should be noticed that the opening of the filling valve is obtained by lifting the stem (6) by means of compressed air fed by the conduit (4).

Figure 3 represents the final phase of the filling; the outflow of sterile and/or inert gas (10) continues to reduce the presence of oxygen in the top space of the filled container.

Please note the closing of the filling valve with compressed air fed by the conduit (5).

Figure 4 shows the continuous presence of the flow (10) of aseptic or inert gas guaranteeing the protection of the filling valve outflow mouth also when it is closed.

Figure 5 shows the preparation of the filling valve for the sanitation of the filling plant. Please note the presence of the item (9) placed underneath by the outflow mouth of the valve. The stem (6) is kept lowered by compressed air fed by the conduit (5).

Figure 6 shows the lowering of the sliding manifold (11) performed by a fluid fed by the conduit (1). In this way the outflow mouth of the filling valve is closed by the dummy bottle (9) and the stem (6) is lifted by compressed air through the conduit (4).

Figure 7 shows the circulation of the sanitizing fluid coming from the conduit (3) and flowing out of it (2). Please note the dummy bottle (9) does not close the outflow mouth of the filling valve but guarantees its sanitization.

In the figures each single item is marked as follows:

1 indicates the inflow conduit of the flow that performs the lowering of the sliding manifold (11).

2 indicates the feeding conduit of an aseptic or inert fluid. It should be pointed out that this conduit is also utilized for the re-circulation of the sanitizing fluid.

3 indicates the feeding conduit of the filling circuit. It should be pointed out that this conduit is also used as inflow conduit for the sanitizing fluid.

4 indicates an inlet conduit of compressed air to lift up the stem of the intercepting valve.

5 indicates an inlet conduit of compressed air to lower the stem of the intercepting valve.

6 indicates the stem of the intercepting valve.

7 indicates the body of the valve.

8 indicates the inter-space that surrounds the body of the valve.

9 indicates the dummy bottle for sanitation.

10 indicates the continuous flow of aseptic or inert gas.

11 indicates a sliding manifold to close the dummy bottle.

The figures highlight the design simplicity as well as the reliability of the valve granting the aseptic conditions in all the critical areas of the aseptic liquids filling process.

Obviously the invention allows for several variations in terms of practical realization concerning the dimensioning and the structural proportioning as well as the technological choices of the material and the components used during construction.

The inventive core of the present invention lies in the creation of a flow of aseptic and/or sterile gas (10) that surrounds coaxially the stream of filling liquid, insulates it from the environment, and assures its aseptic conditions. Also, it protects the outflow mouth of the filling valve and the filling mouth of the container, reducing the presence of oxygen in the top part of the filled container. The feeding circuit of said aseptic and/or inert gas is also used to re-circulate the fluid used to sanitize the plant.

Claims

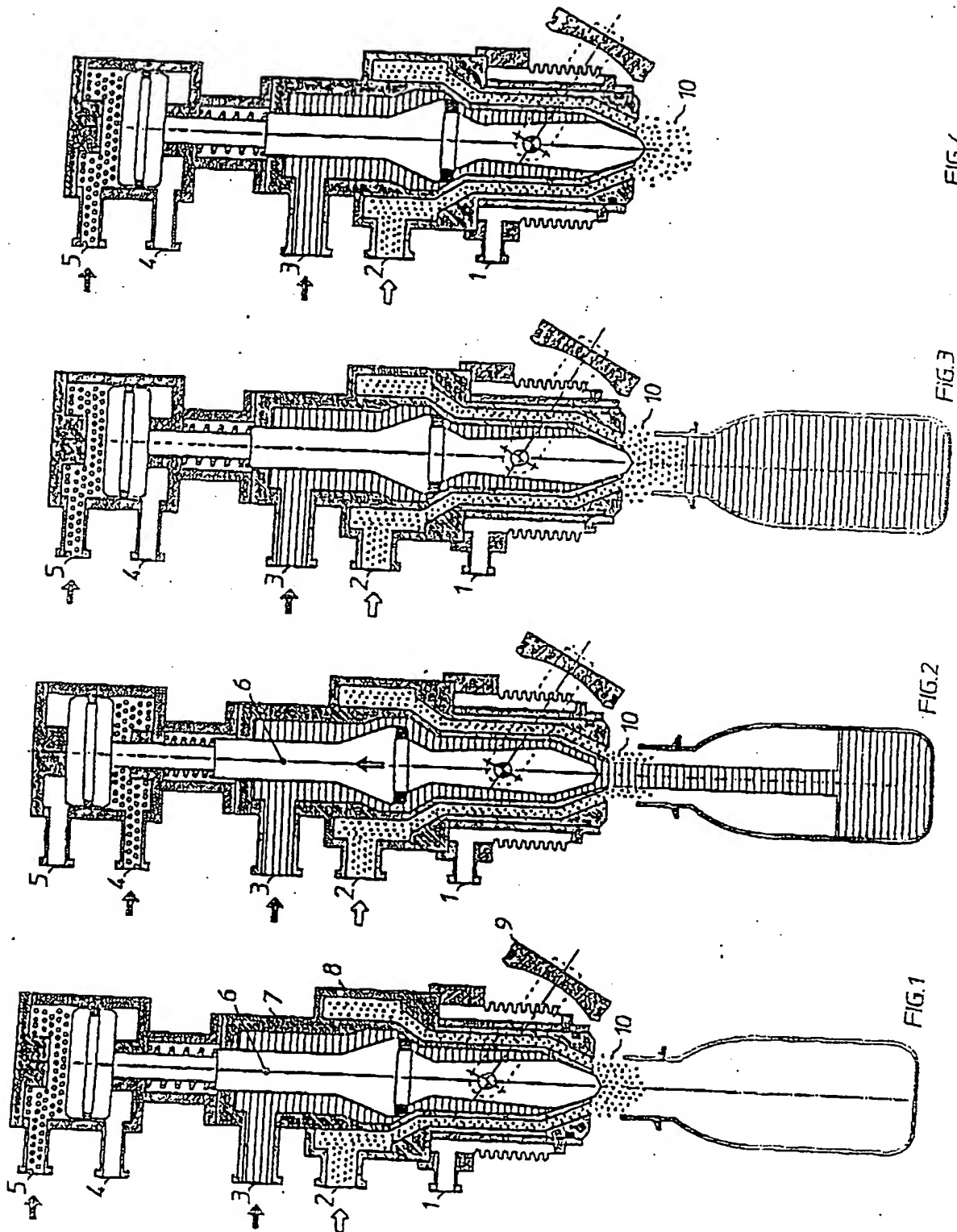
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- 1) Filling valve for the aseptic filling of alimentary liquids characterized by the fact that the product stream flowing from the valve, in the area near the filling mouth of the container underneath, is isolated from the atmosphere by means of a coaxial flow of aseptic and/or inert gas fed by an auxiliary circuit surrounding the outlet conduit of the flowing product.
- 2) Filling valve for the aseptic filling of alimentary liquids, as in claim 1, characterized by the fact that the continuous outflow of sterile and/or inert gas by the filling mouth reduces the presence of oxygen in the top part of the container.
- 3) Filling valve for the aseptic filling of alimentary liquids, as in claims 1 and 2, characterized by the fact that the continuous outflow of sterile and/or inert gas maintains the aseptic conditions of the outflow mouth also when the filling valve is closed.
- 4) Filling valves for the aseptic filling of alimentary liquids, as in claims 1, 2 and 3, characterized by the fact that the same auxiliary circuit, which, during the filling operations, is fed by a flow of sterile and/or inert gas to assure the aseptic conditions of the filling process, is also used for the re-circulation of a sanitizing fluid fed by the same main circuit of the filling valve.
- 5) Filling valve for the aseptic filling of alimentary liquids, as in the previous claims, characterized by the fact that during the sanitation of the filling plant the outflow mouth of the valve is closed by a lid placed as a dummy bottle in cooperation with a sliding manifold specifically located on the body of the filling valve.

Abstract

Filling valve for the aseptic filling of alimentary liquids characterized by the fact that the product stream flowing from the valve, in the area by the filling mouth of the container underneath, is isolated from the atmosphere through a coaxial flow of sterile and/or inert gas fed by an auxiliary circuit surrounding the outlet conduit of the flowing product.

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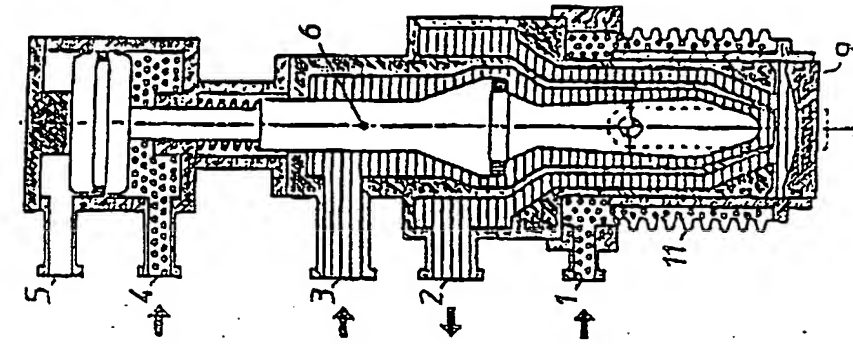


FIG.7

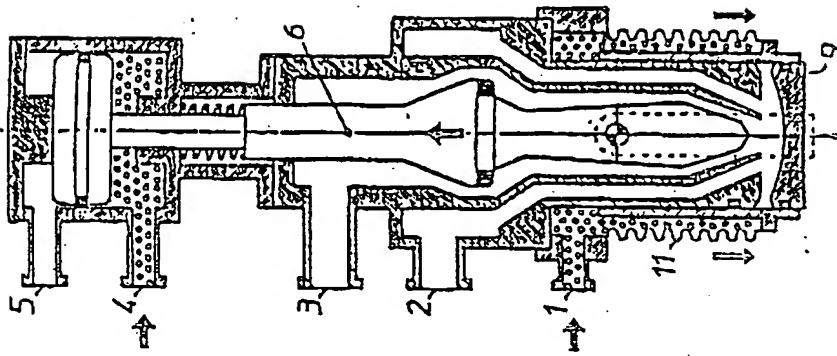


FIG.6

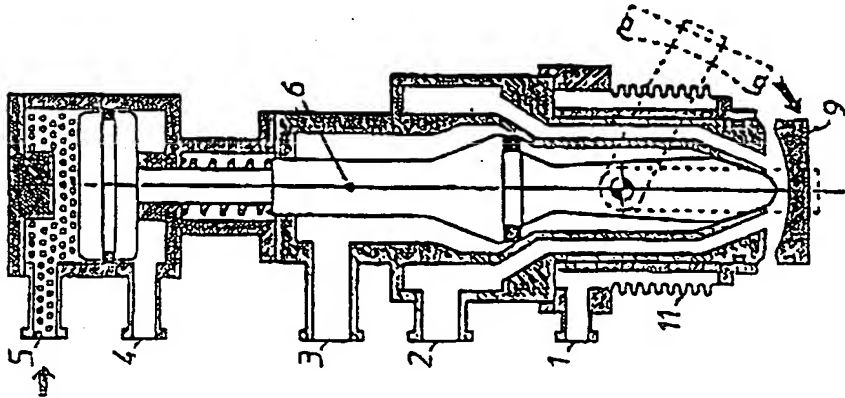


FIG.5